UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,548	09/09/2005	Stefan Gehlen	GRUNP52	3831

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EXAMINER
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ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/532,548	GEHLEN ET AL.
Office Action Summary	Examiner	Art Unit	
	Thomas M. Redding	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *3/30/2007*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20071030

DETAILED ACTION

Drawings

1.   The subject matter of this application admits of illustration by a drawing to
facilitate understanding of the invention. Applicant is required to furnish a drawing
under 37 CFR 1.81(c). No new matter may be introduced in the required drawing.
Each drawing sheet submitted after the filing date of an application must be labeled in
the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR
1.121(d).

        Please note that the drawing of figure 1 as shown in the related WO publication
(WO 2004/038646) would not be acceptable. This figure depicts a block diagram
without "readily identifiable" descriptors of each block, as required by 37 CFR 1.84(n).
Rule 84(n) requires "labeled representations" of graphical symbols, such as blocks; and
any that are "not universally recognized may be used, subject to approval by the Office,
if they are not likely to be confused with existing conventional symbols, and if they are
readily identifiable." In the case of figure 1, the blocks are not readily identifiable per se
and therefore require the insertion of text that identifies the function of that block. That
is, each numbered block should be provided with a corresponding label identifying its
function or purpose.

Correct drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2.   The abstract of the disclosure is objected to because it has been improperly labeled with the heading "Summary".   The abstract should have a heading of "Abstract" or "Abstract of the Disclosure" (37 CFR 1.72 (b)). Correction is required. See MPEP § 608.01(b).

3.   The disclosure is objected to because of the following informalities: The description of figure 1, in the section amended with the heading "Detailed description of the Invention", describes a set of reference numbers which the specification then maps to actual descriptions. The flowchart portrayed in figure 1 should have boxes with descriptive text in them in order to make the figure more easily understandable.

The disclosure is objected to because on pages 3 and 8 it refers to material by specific reference to claim numbers. This is particularly discouraged as claim numbers can change during the course of prosecution and the disclosure is likely to be out of step with the final claims. Additionally, the disclosure should providing support for the claims, not relying on the claims for providing technical definition.

Appropriate correction is required.

Claim Objections - 37 CFR 1.75(a)

4.   The following is a quotation of 37 CFR 1.75(a):

> The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

5.   Claims 1, 12, 15, 16 and the remaining claims by dependency are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

6.   A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a

question or doubt as to whether the feature introduced by such language is (a) merely

exemplary of the remainder of the claim, and therefore not required, or (b) a required

feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131

USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte*

Hasche, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1, 12, 15, 16

each recite the broad recitation "digitized images of persons", and the claim also recites

"in particular, for an image of a person" which is the narrower statement of the

range/limitation.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 - 15 are rejected under 35 U.S.C. 112, first paragraph, because the

specification, while being enabling for a plurality of structural elements performing the

claimed functions, does not reasonably provide enablement for a single structural

element performing all of the claimed functions. The specification does not enable any

person skilled in the art to which it pertains, or with which it is most nearly connected, to

make the invention commensurate in scope with these claims ("A single means claim,

i.e., where a means recitation does not appear in combination with another recited

element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first

paragraph" because a single means claim covers "every conceivable means for

achieving the stated purpose" and "the specification disclosed at most only those means

known to the inventor" - *MPEP, at paragraph 2164.08(a)*).

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 1-10, 13, and 19-20 are rejected under 35 U.S.C. 102(b) as being

anticipated by Prokoski et al. (US 5,163,094).

        Regarding claim 1, Prokoski discloses a [m]ethod for verifying digitized images of

persons, in particular, for verifying the suitability of an image of a person for person

identification, with the steps:

segmenting the image of a person into a background area and a head or face area ("A

portion of the image--referred to as a faceball--is constructed 42 by forming the largest

circle totally within the facial area", Prokoski, column 5, line 67 and "Once the faceball

boundary is defined, all data outside the boundary is discarded to produce a non-

normalized faceball", Prokoski, column 6, line 6),

analyzing the head or face area to determine at least one characteristic value ("Analysis

of the normalized faceball is performed by feature extraction 48 wherein elemental

shapes of the hottest and coldest thermal contours corresponding to the sinuses,

cheeks, and nose are identified. Elemental shapes A, B, C, and D are shown in the

image of FIG. 7", Prokoski, column 6, line 22),

comparing the at least one characteristic value with at least one predetermined

threshold value ("If the resulting cross correlation matrix contains a global minimum, that

minimum is compared to a predetermined threshold value representing a required

quality of fit for recognition 68", Prokoski, column 7, line 67).

Regarding claim 2, Prokoski discloses wherein the step of segmenting

comprises performing a method for object recognition ("A portion of the image--referred

to as a faceball--is constructed 42 by forming the largest circle totally within the facial

area. In general, there is only one center position for the largest circle. If more than one

center position is located, then the most central position will be used as determined by

comparing symmetrical features of the thermal signatures of the sinuses and cheeks of

the individual", Prokoski, column 5, line 67, Prokoski starts his process by segmenting

out elements based on known facial features).

Regarding claim 3, Prokoski discloses wherein analyzing the head or face area

comprises detecting at least one geometric feature of the head or face area ("If more

than one center position is located, then the most central position will be used as

determined by comparing symmetrical features of the thermal signatures of the sinuses

and cheeks of the individual", Prokoski, column 6, line 2, Prokoski starts his process by

segmenting out elements based on known facial features).

Regarding claim 4, Prokoski discloses wherein detecting at least one

geometric feature of the head or face area comprises a size and/or shape

and/or position and/or spatial orientation of the head or face area within the

image of a person ("If more than one center position is located, then the most central

position will be used as determined by comparing symmetrical features of the thermal

signatures of the sinuses and cheeks of the individual", Prokoski, column 6, line 2,

Prokoski analyzes positions of sinuses and cheeks).

Regarding claim 5, Prokoski discloses wherein analyzing the head or face area

comprises detecting at least one reproduction feature of the head or face area

("equalizing the image to a standard histogram", Prokoski, column 3, line 35).

Regarding claim 6, Prokoski discloses wherein the at least one reproduction

feature that is to be detected comprises a contrast and/or a color distribution

and/or a sharpness of the image and/or a brightness and/or a grade of

staining and/or a measure for the irradiation of the head or face area ("equalizing the

image to a standard histogram", Prokoski, column 3, line 35, Equalizing the image to a

standard histogram will affect contrast and brightness).

Regarding claim 7, Prokoski discloses wherein analyzing the head or face area

comprises localizing sub-regions of the head or face area ("If more than one center

position is located, then the most central position will be used as determined by

comparing symmetrical features of the thermal signatures of the sinuses and cheeks of

the individual", Prokoski, column 6, line 2, Prokoski analyzes positions of sinuses and

cheeks which are sub-regions of a face).

Regarding claim 8, Prokoski discloses analyzing the at least one localized sub-

region ("comparing symmetrical features of the thermal signatures of the sinuses and

cheeks of the individual", Prokoski, column 6, line 4).

Regarding claim 9, Prokoski discloses the step: analyzing the image of a person

with respect to global criteria that apply to the entire image of a person (Prokoski, figure

3, reference 40 – Edge Detection, Edge detection is applied to the full image).

Regarding claim 10, Prokoski discloses the step: analyzing the background area
of the image of a person (Prokoski, figure 3, reference 40 – Edge Detection, Edge
detection is applied to the full image, including the background).

Regarding claim 13, Prokoski discloses [a] data processing means for executing
a method according to claim 1 ("The analog image is sent to an image processor 6 for
analysis", Prokoski, column 4, line 60 and figure 1).

Regarding claim 19, Prokoski discloses wherein analyzing the head or face area
comprises detecting at least one geometric feature of the head or face area ("A portion
of the image--referred to as a faceball--is constructed 42 by forming the largest circle
totally within the facial area. In general, there is only one center position for the largest
circle. If more than one center position is located, then the most central position will be
used as determined by comparing symmetrical features of the thermal signatures of the
sinuses and cheeks of the individual", Prokoski, column 5, line 67).

Regarding claim 20, Prokoski discloses wherein analyzing the head or face area
comprises detecting at least one reproduction feature of the head or face area ("The
digital representation includes a matrix of pixels and the intensity of each pixel
corresponds with the level of thermal energy of a corresponding portion of the image",
Prokoski, column 3, line 25, intensity or brightness being a reproduction feature).

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   Claim 11, 12, and 14-17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Prokoski et al. (US 5,163,094) in combination with Fung et al. (US

6,658,148).

        Regarding claim 11, Prokoski teaches all the elements of claim 1 as given above.

        Prokoski does not teach the step: determining whether a negatively evaluated

image could fulfill the predetermined quality criteria after image correction.

        Fung, working in the same problem solving area of image matching does teach

the step:

        determining whether a negatively evaluated image could fulfill the predetermined

quality criteria after image correction ("The pattern matching engine 31 further functions

a sub-pixel mode 35 which is a sub-pixel adjustment for the best match coordinates (x,

y) determined by scan modes A-E. Additionally, there is a rotational mode 37 which

involves rotating the input image or template in order to obtain a better template match",

Fung, column 4, line 35, Fung teaches adjusting an image to get a better match score

which obviously could improve a marginally failing score to passing).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the image adjustment methods taught by Fung in the face recognition system of Prokoski to calculate a better match score ("In one of the applications of an image processing apparatus, an input image having images of various patterns is compared with a reference image of predetermined pattern (hereafter "template") by a pattern matching technique for finding the best match therebetween. The search is carried out by comparing the template to every possible sub-block of the input image with the same dimensions as the template", Fung, column 1, line 15).

Regarding claim 12, the combination of Prokoski and Fung teaches correcting at least one image reproduction feature in the entire image and/or the head or face area and/or the background area, and/or correcting at least one geometric feature of a head or face area displayed in the image of a person ("The pattern matching engine 31 further functions a sub-pixel mode 35 which is a sub-pixel adjustment for the best match coordinates (x, y) determined by scan modes A-E. Additionally, there is a rotational mode 37 which involves rotating the input image or template in order to obtain a better template match", Fung, column 4, line 35, Rotation and translation affect the geometry of the image).

Regarding claim 14, the combination of Prokoski and Fung teaches [a] data

processing means for executing a method according to claim 12 ("The analog image is

sent to an image processor 6 for analysis", Prokoski, column 4, line 60 and figure 1).

Regarding claim 15, the combination of Prokoski and Fung teaches [a] data

processing means for executing a verification method according to claim 1 and for

executing a correction method for digitized images of persons and, in particular, for an

image of a person, which does not fulfill one or more quality criteria during the

verification method, comprising correcting at least one image reproduction feature in the

entire image and/or the head or face area and/or the background area, and/or

correcting at least one geometric feature of a head or face area displayed in the image

of a person ("The analog image is sent to an image processor 6 for analysis", Prokoski,

column 4, line 60 and figure 1).

Regarding claim 16, the combination of Prokoski and Fung teaches a [s]ystem

for quality verification and correction of digitized images of persons comprising a

storage means for storing digitized image data ("This is performed by enrolling or

storing a thermogram image of the individual in a storage device such as a storage card

or a memory for subsequent comparison", Prokoski, column 4, line 15), and one of a

first data processing means for executing a method according to claim 1 ("The analog

image is sent to an image processor 6 for analysis", Prokoski, column 4, line 60 and

figure 1) and a second data processing means for executing a correction method for

digitized images of persons and, in particular, for an image of a person, which does not

fulfill one or more quality criteria during a verification method according to claim 1 ("The

analog image is sent to an image processor 6 for analysis", Prokoski, column 4, line 60

and figure 1, the same processor is capable of running software performing this task),

comprising correcting at least one image reproduction feature in the entire image and/or

the head or face area and/or the background area, and/or correcting at least one

geometric feature of a head or face area displayed in the image of a person ("The

pattern matching engine 31 further functions a sub-pixel mode 35 which is a sub-pixel

adjustment for the best match coordinates (x, y) determined by scan modes A-E.

Additionally, there is a rotational mode 37 which involves rotating the input image or

template in order to obtain a better template match", Fung, column 4, line 35, Rotation

and translation affect the geometry of the image), and

a data processing means for executing a verification method according to claim 1 ("The

analog image is sent to an image processor 6 for analysis", Prokoski, column 4, line 60

and figure 1, the same processor is capable of running software performing this task)

and for executing a correction method for digitized images of persons and, in particular,

for an image of a person, which does not fulfill one or more quality criteria during the

verification method, comprising correcting at least one image reproduction feature in the

entire image and/or the head or face area and/or the background area, and/or

correcting at least one geometric feature of a head or face area displayed in the image

of a person ("The pattern matching engine 31 further functions a sub-pixel mode 35

which is a sub-pixel adjustment for the best match coordinates (x, y) determined by

scan modes A-E. Additionally, there is a rotational mode 37 which involves rotating the

input image or template in order to obtain a better template match", Fung, column 4, line

35, Rotation and translation affect the geometry of the image).

Regarding claim 17, the combination of Prokoski and Fung teaches an apparatus

for generating digitized image data ("The image sensor 4 preferably comprises a

platinum silicide staring array camera although a variety of other infrared imagers of

either the array or scanning type may be used", column 4, line 43 and figure 1 reference

4 – image sensor and reference 8 – A/D converter).

12.   Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prokoski

et al. (US 5,163,094) and Fung et al. (US 6,658,148) in combination with Prokoski'435

(US 6,658,148).

Regarding claim 18, the combination of Prokoski and Fung teaches all the

elements of claim 16 as given above.

The combination of Prokoski and Fung does not explicitly teach a display device

for displaying whether a verified image or a modified image observes predetermined

quality standards.

Prokoski'435 does teach a display device for displaying whether a verified image

or a modified image observes predetermined quality standards ("the system can provide

feedback to the subject by displaying the enrolled image overlaid with the current

image", Prokoski'435, paragraph 9).

It would have been obvious at the time the invention was made for one of

ordinary skill in the art to provide a display as taught by Prokoski'435 in the face

recognition system of the combination of Prokoski and Fung since "Since persons

generally cannot remember and repeat a pose to the extent desired", Prokoski'435,

paragraph 9).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to THOMAS M. REDDING whose telephone number is

(571)270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. M. R./
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624